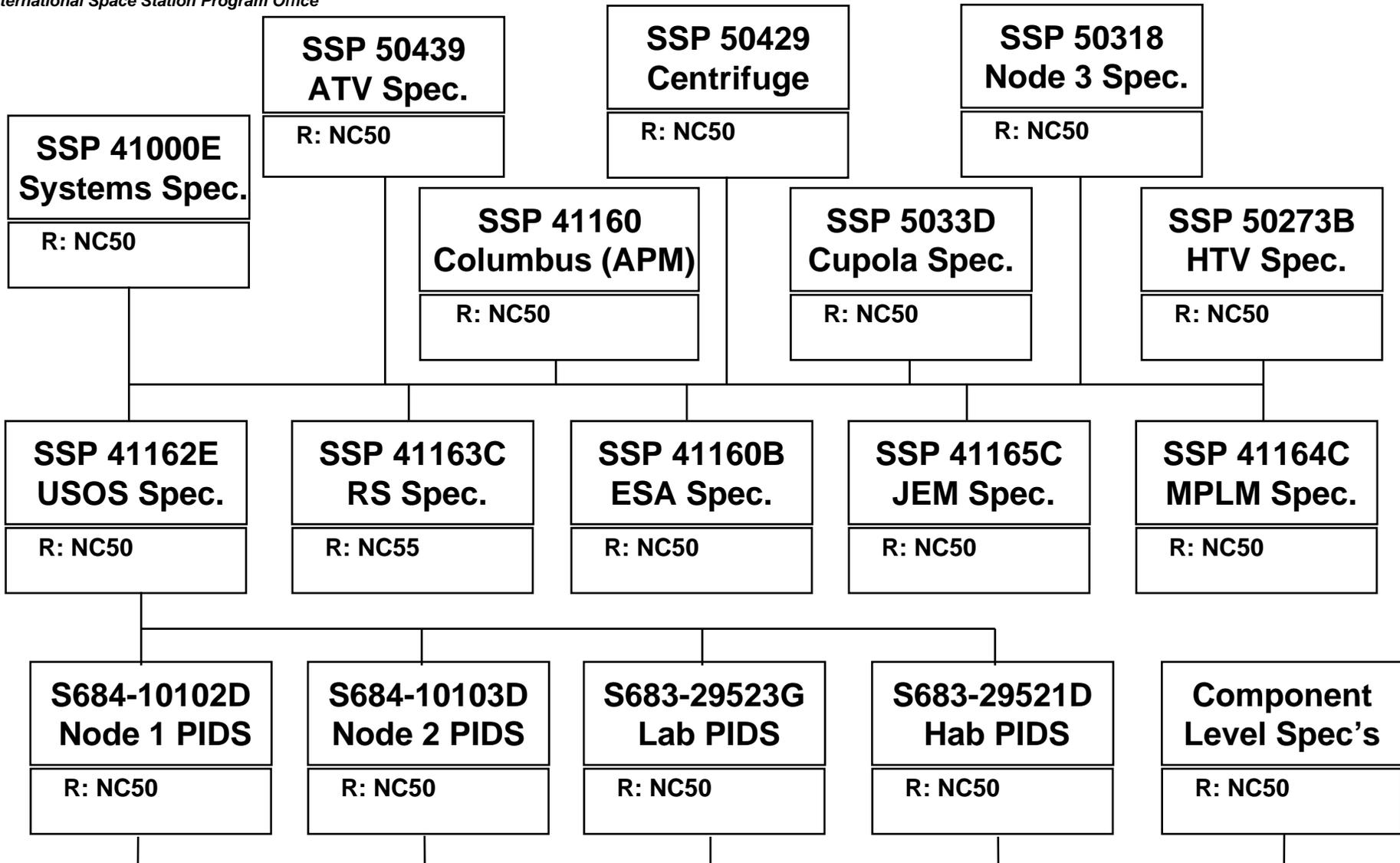
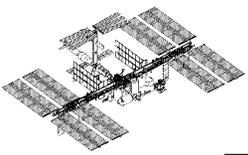


Acoustic Requirements

International Space Station Program Office



Acoustics Noise Issue



Acoustic Requirements



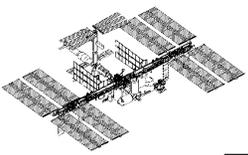
International Space Station Program Office

- **SSP 41000E System Specification**
 - **3.3.10.2 Acoustic emission limits.**

The integrated acoustic environment in habitable areas shall not exceed the US NC–50 criterion for noise sources averaged over any 10 second time interval. This requirement does not apply during alarm or warning conditions.

4.3.3.10.2 Acoustic emission limits.

An integrated acoustic analysis shall be performed. The analysis shall include the integrated response of all segment analyses and measured response data. The verification shall be considered successful when the analysis shows that the Space Station does not exceed the specified acoustic limits.



Acoustic Requirements



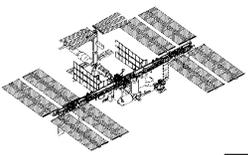
International Space Station Program Office

- **SSP 41162E USOS Specification**
 - **3.3.10.2 Acoustic emission limits.**

The integrated acoustic environment in habitable areas shall not exceed the US NC–50 criterion for noise sources averaged over any 10 second time interval as specified in SSP 50005. This requirement does not apply during alarm or warning conditions.

4.3.3.10.2 Acoustic emission limits.

An integrated acoustic analysis shall be performed. The analysis shall include the integrated response of all element analyses and measured response data. The verification shall be considered successful when the analysis shows that the USOS does not exceed the specified acoustic limits with "bare hatches" closed.



Acoustic Requirements



International Space Station Program Office

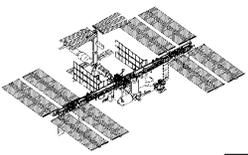
- **SSP 41163C - RS Specification**

- **3.3.10.1 Acoustic emission limits.**

The integrated acoustic environment in habitable areas shall not exceed SSP 50094, paragraph 6.5.2 criterion for noise sources averaged over any 10 second time interval. This requirement does not apply during alarm or warning conditions.

4.3.3.10.1 Acoustic emission limits.

An integrated acoustic analysis shall be performed. The analysis shall include the integrated response of all element analyses and measured response data. The verification shall be considered successful when the analysis shows that the RS does not exceed the specified acoustic limits with "bare hatches" closed.



Acoustic Requirements



International Space Station Program Office

- **SSP 41160B - ESA Specification**

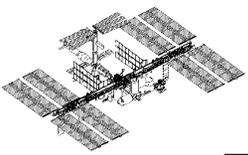
- **3.3.10.1 Audible noise limits.**

The integrated acoustic environment in habitable areas of the on-orbit APM shall be no greater than the US NC-50 criterion for noise sources averaged over any 10 second time interval. This requirement does not apply during alarm or warning conditions.

- **SSP 41165C - JEM Specification**

- **3.3.15.1 Acoustic emission limits.**

The integrated acoustic environment in habitable areas shall not exceed the U.S. NC-50 criterion for noise sources averaged over any 10 second time interval. This requirement does not apply during alarm or warning conditions.



Acoustic Requirements



International Space Station Program Office

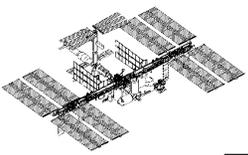
- **SSP 41164C - MPLM Specification**

- **3.3.10.1.1 Acoustic emission limits.**

The integrated acoustic environment in the MPLM Flight System shall not exceed the U. S. NC-50 criterion for noise sources averaged over any ten-second time interval. This requirement does not apply during alarm or warning conditions.

4.3.3.10.1.1 Acoustic emission limits.

An acoustic test shall be performed. The verification shall be performed. The verification shall be considered successful when the test shows that the MPLM does not exceed the specified acoustic limits with "bare hatches" closed.



Acoustic Requirements



International Space Station Program Office

- **S684-10102D - Node 1 PIDS**

- **3.3.10.1 Acoustic emission limits.**

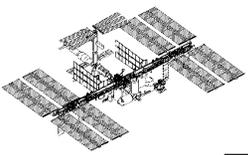
The integrated acoustic environment in habitable areas in Node 1 averaged over any 10 second interval, in octave bands from 63 to 8000 Hz, shall not exceed the levels defined by the NC-50 curve. This requirement does not apply during alarm, warning conditions, or Airlock depressurization.

In areas where crewmembers must communicate by voice, the reverberation time shall not exceed 0.5 +/- 0.1 seconds for the octave band centered at 1000 Hz.

4.3.3.10.1 Acoustic emission limits.

An integrated acoustic analysis shall be performed. The analysis shall include the integrated response of all Node 1 analyses and measured response data. The verification shall be considered successful when the analysis shows that the acoustic noise levels in the Node 1 does not exceed the specified acoustic limits with "bare hatches" closed.

Acoustics Noise Issue



Acoustic Requirements



International Space Station Program Office

- **S684-10103D - Node 2 PIDS**

- **3.3.10.1 Acoustic emission limits.**

The integrated acoustic environment in habitable areas in the Node 2 shall comply with the noise requirements as specified in section 5.4 of SSP 50005.

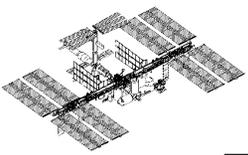
Under normal operating conditions, the node interior acoustic noise levels, averaged over any 10 second interval, in octave bands from 63 to 8000 Hz, shall not exceed the levels defined by the NC-50 curve.

In areas where crewmembers must communicate by voice, the reverberation time shall not exceed 0.5 +/- 0.1 seconds for the octave band centered at 1000 Hz.

4.3.3.10.1 Acoustic emission limits.

An integrated acoustic analysis shall be performed. The analysis shall include the integrated response of all end item analyses and measured response data. The verification shall be considered successful when the analysis shows that the acoustic noise levels in the Node 2 does not exceed the specified acoustic limits with "bare hatches" closed.

Acoustics Noise Issue



Acoustic Requirements



International Space Station Program Office

- **S683-29523G - Lab PIDS**

- **3.3.10.1 Acoustic emission limits.**

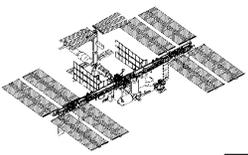
The integrated acoustic environment in habitable areas in the USL shall not exceed the US NC–50 criterion during normal operating conditions when, averaged over a minimum of 10 second time interval.

In areas where crewmembers must communicate by voice, the reverberation time shall not exceed 0.5 +/- 0.1 seconds at 1000 Hz.

- **4.3.3.10.1 Acoustic emission limits.**

An analysis shall be performed to verify that the integrated acoustic environment in the USL complies with the specified NC–50 criterion, using data obtained from lower level equipment or component noise measurements. The verification shall be considered successful when the analysis shows that the USL complies with the specified requirement for each Space Station mode of operation.

Acoustics Noise Issue



Acoustic Requirements



International Space Station Program Office

- **S683-29521D - Hab PIDS**

- **3.3.10.1 Acoustic emission limits.**

The integrated acoustic environment in habitable areas in HAB A shall not exceed the US NC–50 criterion during normal operating conditions, averaged over a minimum of 10–seconds.

In areas where crew members must communicate by voice, the reverberation time shall not exceed 0.5 +/- 0.1 seconds at 1000 Hz.

- **4.3.3.10.1 Acoustic emission limits.**

An analysis shall be performed to verify that the integrated acoustic environment in the HAB A complies with the specified NC–50 criterion, using data obtained from lower level equipment or component noise measurements. The verification shall be considered successful when the analysis shows that the HAB A complies with the specified requirement for each Space Station mode of operation.

Acoustics Noise Issue